

Section 5

Effectiveness Measures

Section 5**Effectiveness Measures****Overview**

The overall purpose of the NITC is to set strategic direction in the area of information technology. This requires knowledge of where we are as well as where we want to be. Section 1 (Goals) sets forth a vision with supporting objectives and priorities. This section presents various ways to track the state's strength in its deployment and use of information technology. The scorecard includes various measures for communities, education, and government.

The NITC must also track its own effectiveness. This is accomplished in part through the choice of NITC objectives, Council priorities, and action plans that have measurable outcomes. To track progress, the Office of the CIO will prepare status reports on NITC-sponsored activities. These reports will be available on the NITC web site at: www.nitc.state.ne.us.

Below is a summary of NITC initiatives and accomplishments:

1. TINA / NETCOM. The NITC served as a catalyst by providing encouragement, funding, and facilitation at critical junctures of the TINA Study. The Technical Panel had an important role in developing and reviewing the RFP for aggregating services under a prime contractor. The Division of Communications has stated that it will not sign a contract with a prime contractor without NITC endorsement.
2. Nebraska Network Feasibility Study. In February 2002, the NITC established an ad hoc group to make recommendations regarding ways of providing digital networks and related support functions to serve education, communities, and state government. The feasibility study is intended to answer questions regarding the feasibility of greater coordination and collaboration in providing applications that use statewide networks serving public functions.
3. Budget Reviews and Prioritization. The review and prioritization process in 2000 was thorough, structured, and produced an integrated and numeric ranking of budget requests for information technology. Both the Budget Division and Legislative Fiscal Office used the NITC reviews and priorities as a point of departure for their own analyses. Efforts are underway to improve the process for 2002.
4. Information Technology Planning. The Statewide Technology Plan focused attention on the need to improve planning for information technology. This is reflected in agency technology comprehensive plans, project proposal forms, and

budget forms for information technology. The NITC can point to the following accomplishments stemming from this initiative:

- Agency comprehensive information technology plans for almost all agencies, which are available on the NITC web site;
- A summary of agency plans, also available on the NITC web site;
- Completion of the first Statewide GIS Strategic Plan in 2001;
- Update of the CJIS Strategic Plan in 2001;
- Widespread use of the project proposal form.

Efforts are underway to improve the process for 2002.

5. **Project Management.** The Statewide Technology Plan endorsed the Project Management Institute's Project Management Body of Knowledge (PMBOK). The first implementation was a requirement for selected projects to submit quarterly project status reports, using a standard format. Seven agencies reported on a total of 16 projects during the last fiscal year, representing 100% compliance. That number will increase to at least 18 projects in FY 2002. Copies of the project status reports are available on a password-protected web site:
<http://www.nitc.state.ne.us/itpm/>.
6. **Technical Architecture.** The Technical Panel has begun the task of developing standards and guidelines for the state's technical architecture. Security policies, accessibility guidelines, and video standards are the furthest along. Other standards are in various stages of development. It is too early to assess what impact these standards and guidelines will have. As a first step in evaluating their effect, the revised instructions for the agency comprehensive information technology plans will request information specific to security, disaster recovery, and accessibility.
7. **Grants.** Since its inception, NITC has awarded a total of \$675,630 in Community Technology Funds and \$639,975 in Government Technology Collaboration Funds. Lists of recipients are available on the NITC web sites:
<http://www.nitc.state.ne.us/cc/grants/2001/ctf2001.htm>,
<http://www.nitc.state.ne.us/sgc/grants/>.

Some of the Government Technology Collaboration Fund projects include:

- CCPE project to upgrade their network and develop a statewide postsecondary educational facilities database;
- Arts Council project to convert to e-granting;
- UNL-Conservation and Survey Division project to digitize historical collection of aerial photographs;
- Aid for small agencies:
 - Foster Care Review Board funding for hardware to allow access to N-Focus and other state systems;

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- Volunteer Service Commission hardware upgrade to allow interaction with federal government application.

Some of the Community Technology Fund projects include:

- City of Aurora technology business incubator;
- Lower Platte North NRD standardized database of surface water features;
- Southeast Community College distance learning network for two health occupations associate degree programs to rural Nebraska;
- Nebraska Commission for the Deaf and Hard of Hearing video conferencing network to provide mental health services for deaf and hard of hearing people in the Panhandle;
- Omaha Tribe of Nebraska will develop an information technology plan that will recommend strategies to enhance governmental, social, and economic infrastructures.

8. Coordination. The NITC and its councils provide a vehicle for organizing collective action on information technology issues. Examples of significant accomplishments include:
 - Developing the state's eGovernment Strategy and Governor's Business Portal Action Plan;
 - Preparing the Community IT Toolkit (in collaboration with the Community Council and Technologies Across Nebraska)
 - Developing the Education Council's policy on course cancellation fees for the NEBSAT system;
 - Facilitating a cooperative purchasing agreement of computers through the Midwest Higher Education Consortium;
 - Investigating the costs and benefits of Internet 2 for K-12 and Higher Education in Nebraska [EC Adequate Rural Bandwidth action item];
 - Coordinating Statewide Distance Learning Report from K-12 (NDE) and Higher Education (CCPE) giving data on programmatic delivery and technical services (NET) [LB543 Intent Language];
 - Researching neighboring states' administration of distance learning and data networks (Iowa, South Dakota, Missouri) [EC Synchronous and Asynchronous Instructional Methods action item];
 - Implementing video standards and developing a migration plan for existing distance learning classrooms [EC Statewide Video Standard action item];
 - Expanding the membership of the Ed Council's Training Advisory Work Group to include Tribal Colleges and K-12 private education and expanding its role to include assessment of the State's I.T. training needs [EC Priority: Identifying and facilitating diverse training opportunities].

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Community Information Technology Effectiveness Measures

Community Indicators

There are few sources, which regularly document the use of information technology by communities or households by state. The U.S. Department of Commerce periodically publishes reports examining Internet access based on data collected by the U.S. Census Bureau. In the last two reports published by the Department of Commerce, Nebraska was slightly below the national average in the percentage of households with Internet access. The most recent report, *A Nation Online: How Americans Are Expanding Their Use of the Internet*, is available at <http://www.ntia.doc.gov/ntiahome/dn/index.html>.

Percent of Households with Internet Access

	2000 ¹	2001 ²
Nebraska	37.0%	45.5%
National Average	41.5%	50.5%

The 2002 State New Economy Index

<http://www.neweconomyindex.org/states/2002/index.html>

B. Nebraska

Indicator	Rank	Score
Overall*	33	54.35
Aggregated Knowledge Jobs	26	9.91
Information Technology Jobs <i>Employment in IT occupations in non-IT industries as a share of total jobs.</i>	21	1.6%
Managerial, Professional & Tech Jobs <i>Managers, professionals, and technicians as a share of the total workforce.</i>	27	25.3%
Workforce Education <i>A weighted measure of the educational attainment (advanced degrees, bachelor's degrees, associate degrees, or some college course work) of the workforce.</i>	34	46.6
Education Level of the Manufacturing Workforce <i>A weighted measure of the educational attainment of the manufacturing workforce.</i>	5	1.56

¹ *Falling Through the Net*. National Telecommunications and Infrastructure Administration. August 2000

² *A Nation Online: How Americans are Expanding Their Use of the Internet*. National Telecommunications and Infrastructure Administration. February 2001

Aggregated Globalization Score	40	8.71
Export Focus Of Manufacturing <i>Manufacturing export sales per manufacturing worker.</i>	23	\$33,079
Foreign Direct Investment <i>The percentage of each state's workforce employed by foreign companies.</i>	45	2.8%
Aggregated Economic Dynamism Scores	41	7.80
"Gazelle" Jobs <i>Jobs in gazelle companies (companies with annual sales revenue that has grown 20 percent or more for four straight years) as a share of total employment.</i>	32	12.8%
Job Churning <i>The number of new start-ups and business failures, combined, as a share of all establishments in each state.</i>	45	16.9%
Initial Public Offerings <i>A weighted measure of the value and number of initial public stock offerings of companies as a share of gross state product.</i>	28	4.31
Aggregated Digital Economy Scores	18	10.98
Online Population <i>The percentage of adults with Internet access in each state.</i>	28	55.4%
Commercial Internet Domain Names <i>The number of commercial Internet domain names (".com") per firm.</i>	42	0.41
Technology in Schools <i>A weighted measure of five factors measuring computer and internet use in schools.</i>	1	3.82
Digital Government <i>A measure of the utilization of digital technologies in state governments.</i>	22	3.18
Online Agriculture <i>A measure of the percentage of farmers with Internet access and who use computers for business.</i>	22	3.10
Online Manufacturers <i>The percentage of manufacturing establishments with Internet access.</i>	31	84.6%
Broadband Telecommunications <i>A measure of the use and deployment of broadband telecommunications infrastructure over telephone lines.</i>	12	3.62
Aggregated Innovation Capacity	34	7.66
High-Tech Jobs <i>Jobs in electronics manufacturing, software and computer-related services, telecommunications, and biomedical as a share of total employment.</i>	19	4.9%
Scientists and Engineers <i>Civilian scientists and engineers as a percentage of the workforce.</i>	40	0.33%

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Patents <i>The number of patents issued to companies or individuals per 1,000 workers.</i>	41	0.34
Industry Investment in R&D <i>Industry investment in research and development as a percentage of Gross State Product (GSP).</i>	42	0.42%
Venture Capital <i>Venture capital invested as a percentage of GSP.</i>	35	0.16%

* Because of differences in [methodology](#), changes in ranks between 1999 and 2002 cannot all be attributed to changes in actual economic conditions in the state.

Education Information Technology Effectiveness Measures

Education Technology Statistics

Although Nebraska's ratio of the number of students per computer has improved in almost every case, other states have made faster headway by providing even more computers using increased funding. With the decreased allotments from the Education Innovation Fund and the Technology Challenge Literacy Fund for new technology, Nebraska's ranking may continue to decline. Nebraska's Internet access has improved relative to the rest of the country by deploying more T-1 to public schools over the past two years.

Category	Year	National Average	Nebraska Average	Rank
Students Per Instructional Computer	1999	5.7	3.9	2
	2001	4.9	3.7	5
	2002	4.2	3.1	6
Students Per Instructional Multimedia Computer	1999	9.8	7.1	3
	2001	7.9	7.1	5
	2002	6.9	6.0	16
Students Per Internet-connected Computer	1999	13.6	7.2	3
	2001	7.9	5.1	5
	2002	6.8	4.6	3
Of those schools with Internet Access, the % that connect using T-1, cable modem, or faster	1999	56%	49%	30
	2001	67%	77%	7
	2002	72%	69%	29

Government Information Technology Effectiveness Measures

Digital State Survey

For three years, the Center for Digital Government, The Progress & Freedom Foundation, and Government Technology Magazine have conducted a detailed survey of digital government in all 50 states. Nebraska's overall score in 1999/2000 was 14. Nebraska scored relatively well in five categories. In 2001, the Digital State Survey made important changes in content and verification procedures. Detailed rankings are provided only for states that rank in the upper half. Nebraska's standing was 17th overall, with a top-ten ranking in three categories. The 2002 Digital State Survey is underway. A comparison of Nebraska's ranking in 2000 and 2001 is below:

Digital State Survey Results		
Category	2000 Ranking	2001 Ranking
Electronic Commerce / Business Regulation	28	25
Taxation / Revenue	29	9 (tie)
Law Enforcement / Courts	12	Unranked (> 25th)
Social Services	9	5 (tie)
Digital Democracy	13	3
Management / Admin.	10	22
Education	K-12: 31st; Higher Ed: 17th	20
GIS / Transportation	(New category in 2001)	Unranked (> 25th)
Aggregate Ranking	14th	17th

The rankings in specific categories reflect the type of questions asked. For example, in 2000, Nebraska ranked 10th in Management/Administration, because it boasted a CIO, a technology commission, and had completed a statewide technology plan. In 2001, the questions focused on whether the CIO had broad authority, whether the technology commission made decisions on projects, and whether a detailed technical architecture was in place. Nebraska's ranking dropped to 22nd, because we are pursuing a collaborative approach to coordination rather than top-down centralization of all decision-making authority. And, we are still in the early phases of the complex task of defining a technical architecture.

In addition to the survey results above, Nebrask@ Online was a 2001 finalist (top 10 designation among states) in the "Best of the Web" competition. The 2001 Digital State Survey also recognized the Department of Health and Human Services' NFOCUS program as a best practice. NFOCUS is unique among states, because it integrates multiple aid programs and provides access to a wide range of private entities that are involved in client intake and services. It is a fully automated eligibility determination and case management system that integrates twenty-five separate benefits programs.

Copies of the Digital State Survey reports are available at: <http://www.centerdigitalgov.com/>. The “best of breed” reports are available on the NITC web site at: www.nitc.state.ne.us/news/0201. A copy of this report with a detailed analysis by category is available at: http://www.nitc.state.ne.us/news/0201/SG_nebraska_scorecard.pdf.

Its score in five categories kept Nebraska from ranking in the top 10 for 2001. These include electronic commerce / business regulation, law enforcement / courts, education, and GIS / transportation. Key steps to improve in these categories are summarized below. Part C gives more detailed information about the results, criteria, and best practices for all eight categories.

Electronic Commerce / Business Regulation. Moving business-related forms to the Internet for downloading or submitting online is key to success. Other areas for improvement include online vehicle registration renewals and security and ease of electronic payment options. Progress also depends on successfully engaging citizens and businesses in developing online services and information.

Current Strategy: Governor’s Business Portal Initiative; individual agency enhancements.

Law Enforcement / Courts. Key success criteria include digital mobile technologies and a digital communications network for officers. Using digital signatures for the justice system and accepting pleadings, motions, and brief filings online are also areas for improvement. Nebraska must continue its progress in integrating criminal justice and law enforcement information systems.

Current Strategy: JUSTICE (court automation system) enhancements; Criminal Justice Information System (CJIS) Strategic Plan; individual agency enhancements.

Management / Administration. A major reason for our low ranking in this category is the lack of a technical architecture. Another is the lack of authority to implement an enterprise view of information technology. Another benchmark (Governing Magazine’s Government Performance Project 2001) also downgraded Nebraska’s approach to information technology management for these reasons. That survey indicated the need to accelerate development of the technical architecture, improve evaluation of proposed systems, and establish evaluation of existing systems after implementation.

Current Strategy: Nebraska Information Technology Commission (NITC) planning and project management requirements; project review process; technical architecture standards and guidelines.

Education. Doing better in this component would require a more centralized approach to several issues and services, including steps to insure the quality and effectiveness of distance education programs and using technology to track the academic performance of children in public schools. In addition, Nebraska

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educational institutions would need to deploy “e-learning systems” that allow individual students to conduct coursework over the Internet.

Current Strategy: NITC Education Council priorities; individual agency enhancements.

GIS / Transportation. Criteria for success include using geographic information systems (GIS) to improve the accuracy and timeliness of decisions, integrating Intelligent Transportation System data, and providing road construction and traffic information and updates on the State web site. In addition, the State must maintain a clearinghouse for GIS data, with public access. Finally, the survey asked whether states have implemented federal plans to bring the Intelligent Highway System to the state’s motor carrier industry.

Current Strategy: GIS Steering Committee Strategic Plan; Department of Roads (DOR) GIS Strategic Plan; DOR Intelligent Transportation System.

Governing Magazine Performance Evaluation

Every two years, Governing Magazine sponsors the Government Performance Project covering five areas of management including financial management, capital management, human resources, managing for results, and information technology. Nebraska scored an average grade of B in 1999 and B- in 2001. Nebraska’s grade for information technology management was a C+ in both 1999 and 2001, but dropped significantly relative to other states. In 1999, Governing Magazine ranked 27 states with a grade of C or below. In 2001, only 12 states received a grade of C or below. Nebraska did well in the areas of having a statewide technology plan, sharing data among agencies and across jurisdictions, implementing digital government, and using information technology to support agency functions and programs. Areas for improvement included:

- More centralized authority over information technology decisions (the Governing survey implies a preference for centralized decisions);
- Formal evaluation of proposed hardware and software systems;
- Formal evaluation of information technology systems after implementation;
- A structured process for project management, tracking, and reporting;
- Adopting a comprehensive technical architecture, standards, and guidelines;
- Implementing training.

Security Assessments

In October 2000, KPMG conducted a limited security audit of the state’s network. They identified several vulnerabilities stemming from missing or weak security policies and poorly configured servers. Long-term recommendations called for:

- Developing and enforcing security policies and procedures;
- Creating minimum baseline documents for each platform;

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- Reviewing and testing device configurations on a regular basis.

The NITC has funded a grant for an external intrusion vulnerability assessment of the state's data network. The Office of the Chief Information Officer will solicit bids in June or July 2002. The assessment will include a vulnerability scan that is designed to mimic how an external party with little or no "inside" information would approach breaching State security measures. Based on the results of the initial phase, selected areas of potential vulnerabilities will be studied in further depth and exploited as far as is reasonable without causing significant disruption of services.

CHARTS Independent Verification and Validation

As part of a federal requirement, the consulting firm of TRW has performed semi-annual reviews of the CHARTS project. Their findings included recommendations for statewide standards in several areas:

- Management standards for large scale and high risk projects;
- Quality Assurance (QA) standards, metrics and tools;
- System development and Configuration Management (CM) process for all state projects.